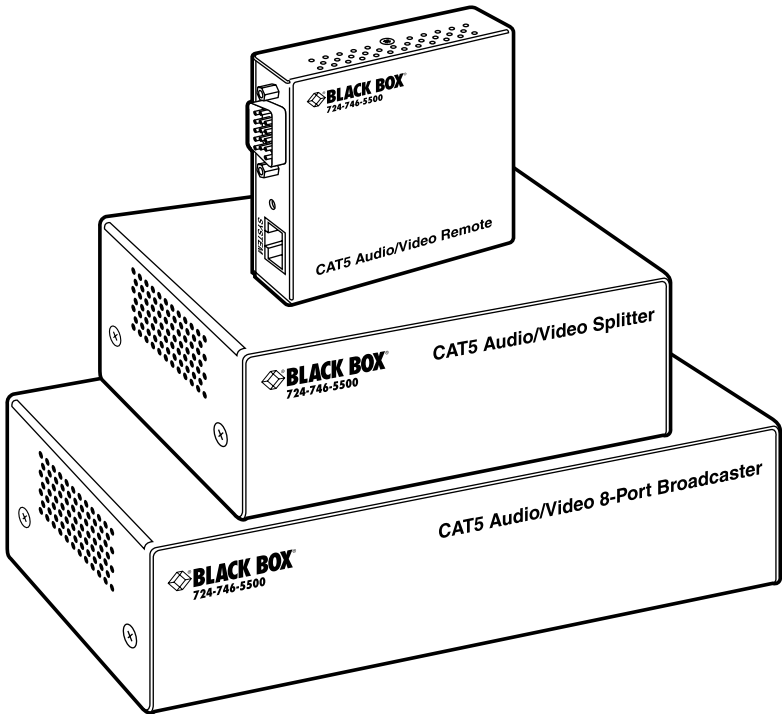




# CAT5 Audio/Video 8-Port Broadcaster

## CAT5 Audio/Video Splitter

### CAT5 Audio/Video Remote



**CUSTOMER  
SUPPORT  
INFORMATION**

Order toll-free in the U.S.: Call **877-877-BBOX** (outside U.S. call **724-746-5500**)  
FREE technical support 24 hours a day, 7 days a week: Call **724-746-5500** or fax **724-746-0746**  
Mailing address: **Black Box Corporation**, 1000 Park Drive, Lawrence, PA 15055-1018  
Web site: [www.blackbox.com](http://www.blackbox.com) • E-mail: [info@blackbox.com](mailto:info@blackbox.com)

FEDERAL COMMUNICATIONS COMMISSION  
AND  
INDUSTRY CANADA  
RADIO FREQUENCY INTERFERENCE STATEMENTS

This equipment generates, uses, and can radiate radio-frequency energy, and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio communication. It has been tested and found to comply with the limits for a Class A computing device in accordance with the specifications in Subpart B of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when the equipment is operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user at his own expense will be required to take whatever measures may be necessary to correct the interference.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

*This digital apparatus does not exceed the Class A limits for radio noise emission from digital apparatus set out in the Radio Interference Regulation of Industry Canada.*

*Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le Règlement sur le brouillage radioélectrique publié par Industrie Canada.*

**NORMAS OFICIALES MEXICANAS (NOM)  
ELECTRICAL SAFETY STATEMENT**

**INSTRUCCIONES DE SEGURIDAD**

1. Todas las instrucciones de seguridad y operación deberán ser leídas antes de que el aparato eléctrico sea operado.
2. Las instrucciones de seguridad y operación deberán ser guardadas para referencia futura.
3. Todas las advertencias en el aparato eléctrico y en sus instrucciones de operación deben ser respetadas.
4. Todas las instrucciones de operación y uso deben ser seguidas.
5. El aparato eléctrico no deberá ser usado cerca del agua—por ejemplo, cerca de la tina de baño, lavabo, sótano mojado o cerca de una alberca, etc..
6. El aparato eléctrico debe ser usado únicamente con carritos o pedestales que sean recomendados por el fabricante.
7. El aparato eléctrico debe ser montado a la pared o al techo sólo como sea recomendado por el fabricante.
8. Servicio—El usuario no debe intentar dar servicio al equipo eléctrico más allá a lo descrito en las instrucciones de operación. Todo otro servicio deberá ser referido a personal de servicio calificado.
9. El aparato eléctrico debe ser situado de tal manera que su posición no interfiera su uso. La colocación del aparato eléctrico sobre una cama, sofá, alfombra o superficie similar puede bloquea la ventilación, no se debe colocar en libreros o gabinetes que impidan el flujo de aire por los orificios de ventilación.
10. El equipo eléctrico deber ser situado fuera del alcance de fuentes de calor como radiadores, registros de calor, estufas u otros aparatos (incluyendo amplificadores) que producen calor.
11. El aparato eléctrico deberá ser conectado a una fuente de poder sólo del tipo descrito en el instructivo de operación, o como se indique en el aparato.

12. Precaución debe ser tomada de tal manera que la tierra física y la polarización del equipo no sea eliminada.
13. Los cables de la fuente de poder deben ser guiados de tal manera que no sean pisados ni pellizcados por objetos colocados sobre o contra ellos, poniendo particular atención a los contactos y receptáculos donde salen del aparato.
14. El equipo eléctrico debe ser limpiado únicamente de acuerdo a las recomendaciones del fabricante.
15. En caso de existir, una antena externa deberá ser localizada lejos de las líneas de energía.
16. El cable de corriente deberá ser desconectado del cuando el equipo no sea usado por un largo periodo de tiempo.
17. Cuidado debe ser tomado de tal manera que objetos líquidos no sean derramados sobre la cubierta u orificios de ventilación.
18. Servicio por personal calificado deberá ser provisto cuando:
  - A: El cable de poder o el contacto ha sido dañado; u
  - B: Objetos han caído o líquido ha sido derramado dentro del aparato; o
  - C: El aparato ha sido expuesto a la lluvia; o
  - D: El aparato parece no operar normalmente o muestra un cambio en su desempeño; o
  - E: El aparato ha sido tirado o su cubierta ha sido dañada.

**TRADEMARKS USED IN THIS MANUAL**

*Any trademarks mentioned in this manual are acknowledged to be the property of the trademark owners.*

# Contents

<b>Chapter</b>	<b>Page</b>
1. Specifications .....	6
2. Introduction .....	8
2.1 Description .....	8
2.2 Features .....	8
2.3 Typical Applications .....	9
2.4 What the Package Includes .....	9
3. Installation .....	11
3.1 The Multi-Functional System .....	11
3.2 The CAT5 Audio/Video System Units .....	11
3.3 Expanding the CAT5 Audio/Video System .....	12
3.4 Pre-Installation Instructions .....	12
3.5 The CAT5 Audio/Video System Cables .....	13
3.6 Power Supply .....	13
3.7 The CAT5 Audio/Video System Configuration for a Computer-Based Training (CBT) Application .....	14
3.8 Detailed Connections .....	15
3.9 System Configuration without Remote Computers .....	16
4. Operation .....	17
4.1 The Control Unit .....	17
4.1.1 Broadcast to All .....	17
4.1.2 Dark All .....	17
4.2 Adjusting the Picture Quality .....	17
Appendix. Troubleshooting .....	18
A.1 Calling Black Box .....	18
A.2 Shipping and Packaging .....	18

# 1. Specifications

**Resolution:** Up to 1600 x 1200 @ 75 Hz

**Input/Output Video Signals:** Analog signal red, green, blue 0.7v p-p 75 ohm

**Sync:** TTL compatible

**Horizontal/Vertical Sync Polarity:** Positive/Negative

**System Cable:** CAT5 shielded twisted pair (STP) cable

**Maximum Distance:** 360 ft. (109.7 m)

**Audio:** Mono

**Temperature Tolerance:** Operating: Up to 122°F (50°C); Storage: -40 to +158°F (-40 to 70°C)

## Connectors:

AC156A-8: VGA In: (1) HD15 male;

VGA Out: (1) HD15 female;

System Out: (8) shielded RJ-45;

Sound card: (2) 3.5-mm In/Out jacks;

Microphone/Headphone: (2) 3.5-mm In/Out jacks;

Controller: (1) 8-pin mini-DIN female;

AC157A-8: System In: (1) shielded RJ-45;

System Out: (1) shielded RJ-45;

AC158A-REM: System In: (1) shielded RJ-45;

CPU VGA: (1) HD15 male;

Screen: (1) HD15 female;

Audio In/Out: (2) 3.5-mm jacks

**Cables:** AC156A-8: Control unit: (1) 3-ft. (0.9-m) cable to 8-pin mini-DIN connector;

Broadcaster unit: (1) 5-ft. (1.5-m) VGA cable with HD15 male to HD15 female,

(2) 4-ft. (1.2-m) stereo cables with 3.5-mm plug to 3.5-mm plug;

AC157A-8: No cables;

AC158A-REM: (1) 2.5-ft. (0.8-m) VGA cable with HD15 male to HD15 female connectors, (2) audio cables with (2) 3.5-mm plugs to (1) 3.5-mm plug and (1) 3.5-mm jack

**Power:** AC156A-8 and AC157A-8: 12-VDC external power adapter and power cord;  
AC158A-REM: From previous unit

**Size:** AC156A-8: 6.9"H x 3.8"W x 1.7"D (17.5 x 9.7 x 4.3 cm);  
AC157A-8: 4.6"H x 3.8"W x 1.7"D (11.7 x 9.7 x 4.3 cm);  
AC158A-REM: 1.3"H x 3.1"W x 0.9"D (3.3 x 7.9 x 2.3 cm)

**Weight:** AC156A-8, AC157A-8: 2 lb. (0.9 kg); AC158A-REM: 0.6 lb. (0.3 kg)



## 2. Introduction

### 2.1 Description

Broadcast a single audio/video source to up to 512 remote display stations. The CAT5 Audio/Video System broadcasts high-resolution video and audio over CAT5 cable to multiple display stations in real time. You can place the remote display stations up to 360 ft. (109.7 m) away from the source. Since the CAT5 system is a pure hardware solution, it provides real-time screen transfer without loss of screen quality. Broadcast the source screen at high video resolution—up to 1600 x 1200 @ 75 Hz!

The CAT5 Audio/Video System consists of these components:

- (1) CAT5 Audio/Video 8-Port Broadcaster (AC156A-8) to connect to the audio/video source. You must have one of these.
- (1) or more CAT5 Audio/Video Splitters (AC157A-8) to expand and boost the system. You may or may not need one of these. You can have up to 72 splitters.
- (1) CAT5 Audio/Video Remote (AC158A-REM) for each remote screen/computer. You need at least one of these (but could have as many as 512—for 512 users, you'd also need 72 splitters).

Category 5 shielded twisted-pair (STP) cables connect the CAT5 Audio/Video system. The CAT5 Audio/Video Remote units (AC158A-REM) can be up to 360 ft. (109.7 m) away from the Broadcaster (AC156A-8).

### 2.2 Features

- Remote display and control lets you extend your information/ideas to a distance of 360 ft. (109.7 m) without making any changes or buying new computer equipment.
- CAT5 cable technology is plug-and-play and produces no cable clutter.
- Monitor the connection at a local unit.
- No power required at the remote unit.
- Buy only the number of remote units you need.
- Online updates and troubleshooting.

- All required cables are included, so installation is quick and easy.
- High-resolution video support of up to 1600 x 1200 @ 75 Hz makes it ideal for display on a large screen.

## **2.3 Typical Applications**

- **Broadcast display application:** An ideal solution for a wide range of multi-screen applications. Give real-time data updates at airports, train/bus stations, stock exchanges, etc.; or broadcast entertainment/advertisements in stores, restaurants, etc.; or for multiple-location security monitoring.
- **Computer classroom application:** Use the system to send a teacher's screen with audio to all student monitors/speakers or darken all screens. This application works with or without computers connected to each CAT5 Audio/Video Remote (AC158A-REM).

## **2.4 What the Package Includes**

If you ordered the CAT5 Audio/Video 8-Port Broadcaster (AC156A-8), you should have received the following items:

- (1) CAT5 Audio/Video Broadcaster
- (1) Control unit
- (1) VGA cable
- (2) Stereo audio cables
- (1) Power supply
- (1) Power cord
- This users' manual

If you ordered the CAT5 Audio/Video Splitter (AC157A-8), you should have received the following items:

- (1) CAT5 Audio/Video Splitter
- (1) Power supply
- (1) Power cord
- (3) Stickers to label the STP cable
- This users' manual

## **CAT5 AUDIO/VIDEO 8-PORT BROADCASTER, SPLITTER, AND REMOTE**

If you ordered the CAT5 Audio/Video Remote (AC158-REM), you should have received the following items:

- (1) CAT5 Audio/Video Remote
- (1) VGA cable
- (1) Audio cable
- (3) Stickers to label the STP cable

If anything is missing or damaged, please contact Black Box at 724-746-5500.

## 3. Installation

### 3.1 The Multi-Functional System

You can use the CAT5 Audio/Video system in the following ways:

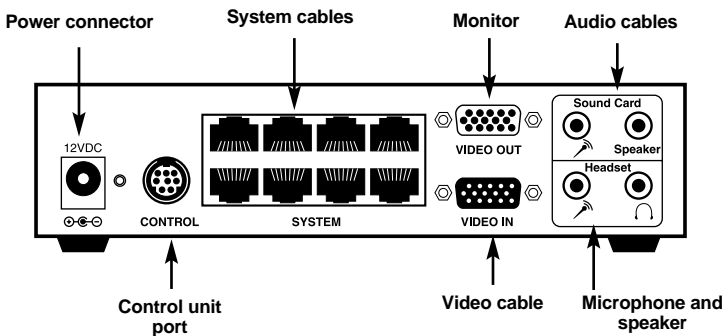
- A. Without the control unit: The CAT5 Audio/Video Broadcaster constantly broadcasts a computer screen with audio to all remote monitors/speakers.
- B. With the control unit:
  - Broadcast a computer screen with audio to all remote monitors/speakers.
  - Darken all remote screens (audio broadcast is unaffected).
  - Release the remote screens to allow local access (when remote computers are connected).

The screen dark function is useful when carrying out maintenance, when changing the broadcast program, or for grabbing students' attention in a classroom environment.

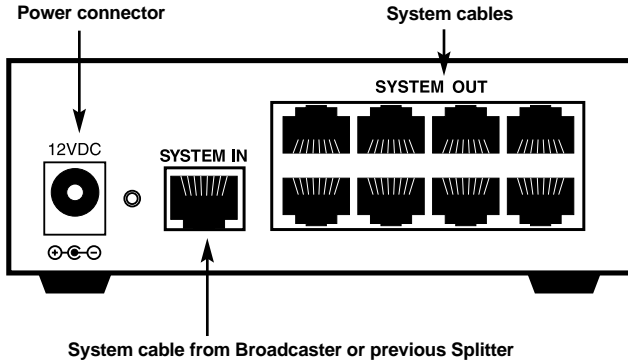
With both applications, you can broadcast the video at resolutions of up to 1600 x 1200 @ 75 Hz, depending on the cable length.

### 3.2 The CAT5 Audio/Video System Units

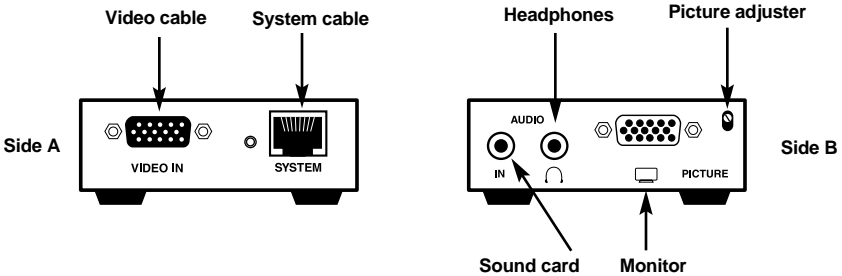
The following illustrations show the Broadcaster, Video Splitter, and Remote units.



**Figure 3-1. CAT5 Audio/Video 8-Port Broadcaster (AC156A-8).**



**Figure 3-2. CAT5 Audio/Video Splitter (AC157A-8).**



**Figure 3-3. CAT5 Audio/Video Remote (AC158A-REM).**

### 3.3 Expanding the CAT5 Audio/Video System

You can expand the CAT5 Audio/Video System to 512 Remote units (AC158A-REM). This is done by having up to two levels of Splitters (AC157A-8). Each Splitter on level 2 can have 8 Remote units connected to it (see Figure 3-5).

### 3.4 Pre-Installation Instructions

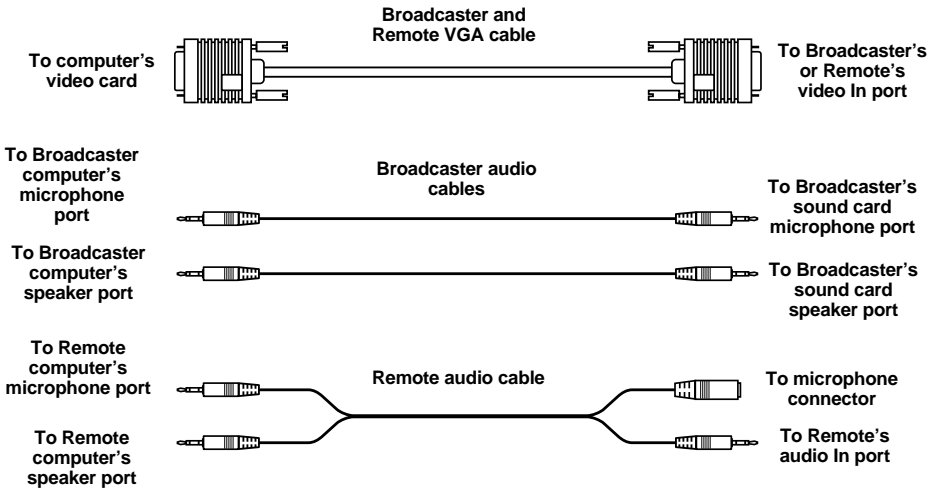
#### NOTE

In the CAT5 Audio/Video System, the CAT5 cables carry electrical power. **DO NOT** connect them to any other device! To avoid this, we recommend that you attach the provided stickers to the ends of each CAT5 cable.

Place cables away from fluorescent lights, air conditioners, and machines that are likely to generate electrical noise.

### 3.5 The CAT5 Audio/Video System Cables

The included cables are illustrated below.



**Figure 3-4. The CAT5 Audio/Video System cables.**

#### THE REMOTE VIDEO AND AUDIO CABLES

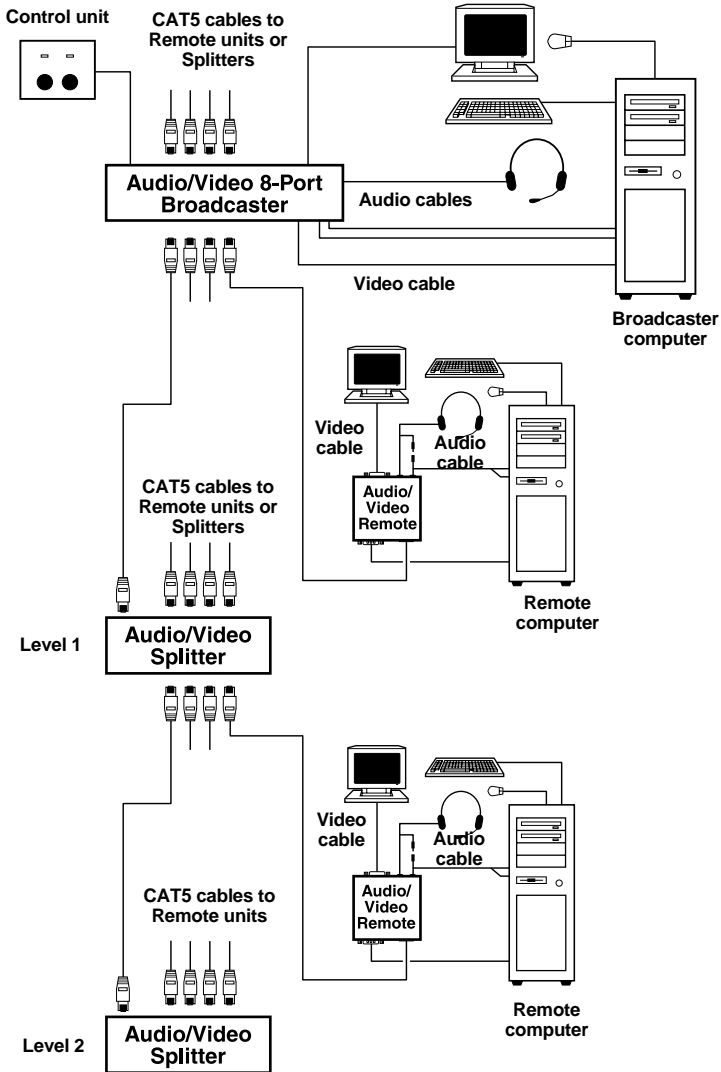
The Remote video and audio cables are only used when the CAT5 Audio/Video Remote is connected to a computer.

### 3.6 Power Supply

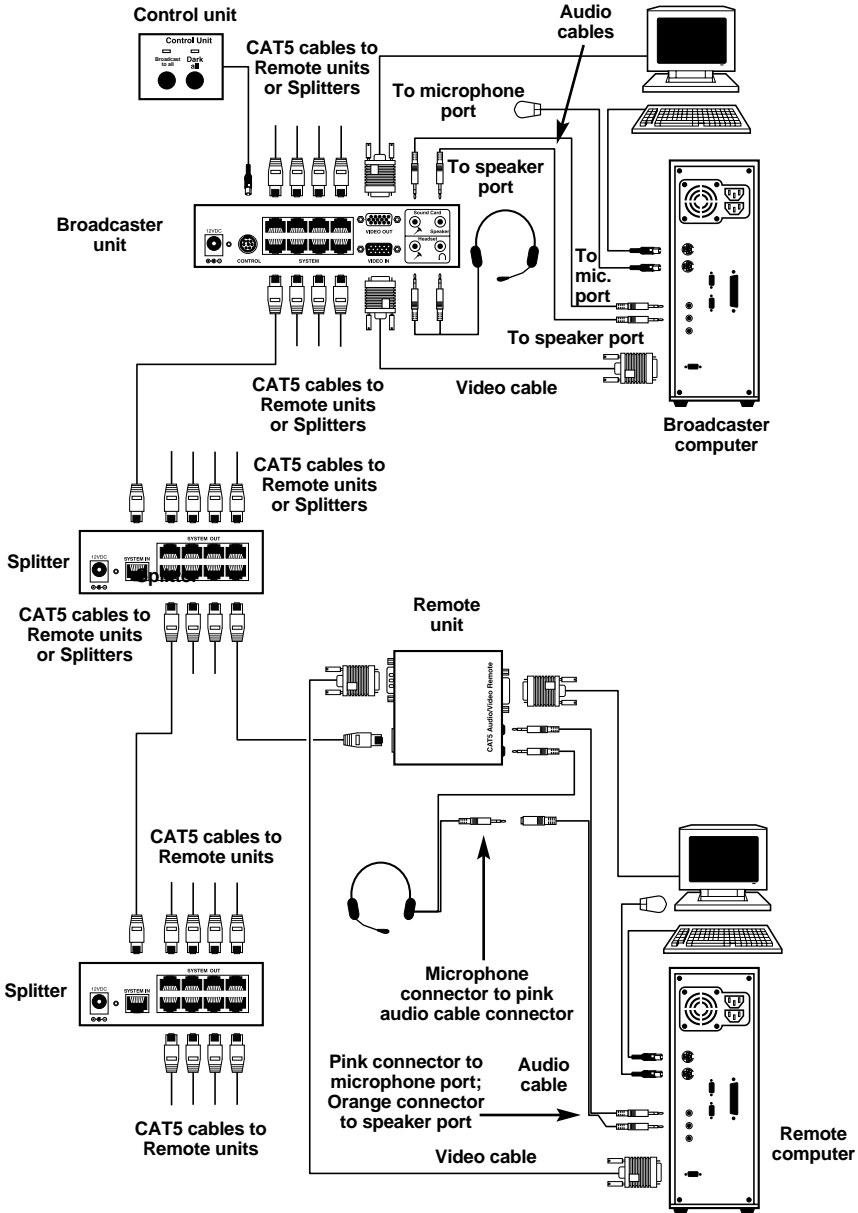
Connect the Broadcaster and Splitters to the power supply with the power adapters and power cords provided. The Remote units do not require an external power supply.

## 3.7 The CAT5 Audio/Video System Configuration for a Computer-Based Training (CBT) Application

The illustration below shows the system configuration with the control unit (which is included with the 8-Port Broadcaster) and the optional Remote units.

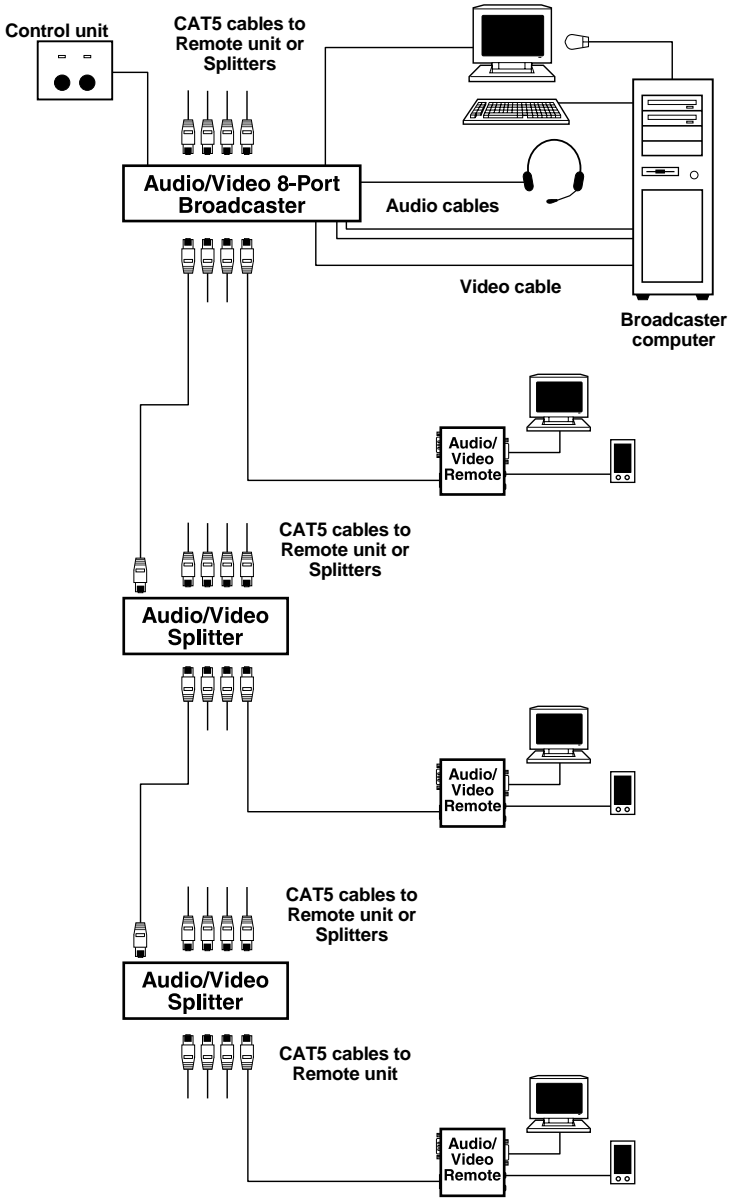


3.8 Detailed Connections





**3.9 System Configuration without Remote Computers**

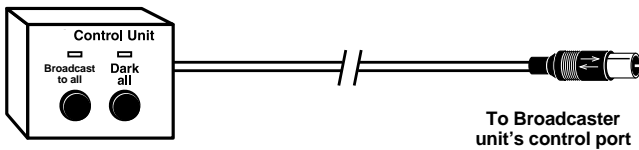


## 4. Operation

Once connected, the CAT5 Audio/Video System broadcasts to all monitors/speakers.

### 4.1 The Control Unit

The control unit, which is included with the 8-Port Broadcaster, is shown below.



**Figure 4-1. Control unit.**

With the control unit, you can carry out the following functions: Master to all or Dark all.

#### 4.1.1 BROADCAST TO ALL

Press the **Broadcast to all** button to send the Broadcaster's screen with audio to all remote monitors/speakers. The LED above the button will light.

Press the button again to release the remote screens.

#### 4.1.2 DARK ALL

Press the **Dark all** button to darken all remote screens. The LED above the button will light. (This does not affect audio broadcasting.)

Press the button again to release the remote screens.

### 4.2 Adjusting the Picture Quality

To adjust the picture quality, use a small screwdriver to turn the Picture adjuster on the Remote unit. (See Figure 3-3 in **Chapter 3**.)

# Appendix. Troubleshooting

## A.1 Calling Black Box

If you determine that any component of your CAT5 Audio/Video System is malfunctioning, do not attempt to alter or repair the unit. It contains no user-serviceable parts. Contact Black Box at 724-746-5500.

Before you do, make a record of the history of the problem. We will be able to provide more efficient and accurate assistance if you have a complete description, including:

- the nature and duration of the problem.
- when the problem occurs.
- the components involved in the problem.
- any particular application that, when used, appears to create the problem or make it worse.

## A.2 Shipping and Packaging

If you need to transport or ship any component of your CAT5 Audio/Video System:

- Package it carefully. We recommend that you use the original container.
- If you are shipping any component of your CAT5 Audio/Video System for repair, make sure you include everything that came in the original package. Before you ship, contact Black Box to get a Return Authorization (RA) number.



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